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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,396	06/28/2001	Henry M. D'Souza	H052617.1083US0	6001

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06/28/2005

HEWLETT-PACKARD, INTELLECTUAL PROPERTY
ADMINISTRATION LEGAL DEPARTMENT, M/S 35
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EXAMINER

YANG, RYAN R

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,396

Applicant(s)

D'SOUZA ET AL.

Examiner

Ryan R. Yang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,10-17,19-21 and 23-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 11, 3,5-8,10-17,19-21 and 23-25 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/21/2005 has been entered.
2. This action is responsive to communications: Amendment, filed on 3/21/2005. This action is non-final.
3. Claims 1, 3, 5-8, 10-11, 13-17, 19-21 and 23-25 are pending in this application. Claims 1, 8, 15 and 20 are independent claims. In the Amendment, filed on 3/21/2005, claim 2 and 9 were canceled.
4. The present title of the invention is "Hardware-based accelerated color correction filtering system" as filed originally.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 7, 8, 12, 13, 15, 20, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clifton et al. (6,388,648) and further in view of Ogawa (6,693,642).

As per claim 1, Clifton et al., hereinafter Clifton, discloses a color video data correction filtering system, comprising:

a monitor profile that comprises monitor specific color characteristics and monitor specific input-output characteristics (Figure 13, item 170 and 172);

a plurality of a sets of gamut shifting arrays adapted to obtain the monitor specific color characteristics from the monitor profile to compensate for color point data of a plurality of constituent colors of a color monitor with each set of gamut shifting arrays corresponding to a multiplication look-up table (MLUT) comprising values that represent specific multiplication operations ("digital R, G, and B data conforming to the measured R, G, and B coordinate values will be converted by digital color space converter 170 to digital R, G, and B data conforming to the target R, G, B coordinate values", column 13, line 45-49).

Clifton discloses a color data correction system and an optional LUT to further modify the data. It is noted that Clifton does not explicitly disclose "a plurality of non-linearization tables, each adapted to receive an input from one of the sets of gamut shifting arrays and to obtain the monitor specific input-output characteristics from the monitor profile to compensate for non-linearities of the color monitor and produce output color video data compensated for non-linearities and color points of the color monitor", however, this is known in the art as taught by Ogawa. Ogawa discloses a gradation correction method using conversion tables having different input/output characteristics (Abstract) to correct non-linearity of the display.

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Ogawa into Clifton because Clifton discloses a color data correction system and Ogawa discloses a monitor specific correction method in order to correct monitor specific irregularity.

7. As per claim 8, Clifton and Ogawa disclose a computer system with all the elements as rejected claim 1, and Clifton further discloses

Processor (Figure 13, item 162);

Video memory coupled to the processor (Figure 13, item 166); and

A color video data correction filtering system coupled to the processor (Figure 13, 170 and 172).

8. As per claims 7 and 13, Clifton and Ogawa demonstrated all the elements as applied to the rejection of independent claims 1 and 8, supra, respectively, and Clifton further discloses non-linearities of the color monitor comprise an input-output characteristic for each constituent color of the color monitor (since the LCD unit is inherently a color system).

9. As per claim 12, Clifton and Ogawa demonstrated all the elements as disclosed in the rejected claims 8, and Clifton further discloses the plurality of sets of gamut shifting arrays is stored in a plurality of look-up tables (Figure 13, item 166 where a plurality of shift coefficient is stored).

10. As per claim 15, Clifton and Ogawa disclose a method of color video data correction filtering, comprising all the elements as disclosed in claim 1, and therefore is similarly rejected as claim 1.

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11. As per claim 20, Clifton and Ogawa disclose a color correction system, comprising all the elements as disclosed in claim 1, and therefore is similarly rejected as claim 1.

12. As per claim 21, Clifton and Ogawa demonstrated all the elements as disclosed in the rejected claims 20, and Clifton further discloses the color filter decompensates for non-linear RGB input based on a standard color image gamma function ("An LCD projection unit employs a luminance and color balance system employing an LCD array characterization lookup table storing multiple sets of luminance and gamma correction values", Abstract, where the gamma function is non-linear).

13. As per claim 23, Clifton and Ogawa demonstrated all the elements as disclosed in the rejected claims 20, and Clifton further discloses wherein each of the plurality of MLUTS are loaded with pre-calculated values that represent specific multiplication operations (Figure 12A- 12I are multiplication matrix and Figure 13, item 166 stores the calculated coefficients).

14. Claims 3, 11 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Clifton al. and Ogawa as applied to claim 1 above, and further in view of Wilt et al. (US 2002/0085015).

As per claims 3, 11 and 17, Clifton and Ogawa demonstrated all the elements as applied to the rejection of independent claims 1, 11 and 17, supra, respectively.

Clifton and Ogawa disclose a system of color correction for a CRT. It is noted that Clifton and Ogawa do not explicitly disclose the CRT (which is a non-linear display device) has sRGB color space, however, this is known in the art as taught by Wilt et al.,

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hereinafter Wilt. Wilt discloses a color conversion method using non-linear sRGB color space ([0005]).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Wilt into Clifton and Ogawa because Clifton and Ogawa disclose a system of correcting color relating to a CRT (which has non-linear color space) and Wilt discloses a color correcting system using non-linear sRGB space in order to extend the correction method to displays, scanners and digital cameras ([0005]).

15. Claims 5, 14, 19, 24 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Clifton al. and Ogawa as applied to claim 1 above, and further in view of Oku (5,489,996).

As per claims 5, 14 and 19, Clifton and Ogawa demonstrated all the elements as applied to the rejection of independent claims 1, 8 and 15, supra, respectively.

Clifton and Ogawa disclose a system of correcting color with a graphics controller (Figure 10, Clifton). The controller can use look-up table for processing. It is noted that Clifton and Ogawa do not explicitly disclose a graphics controller coupled to the plurality of pre-calculated gamut shifting arrays, however, this is known in the art as taught by Oku. Oku discloses a color correcting system in which the color adjusting matrix is built with a plurality of look-up tables ("The hardware of the first color correction unit may be constructed as shown in FIG. 9. As shown, the three look-up tables 61, 62 and 63 of the input normalizing unit and the linear matrix calculator 57 are constructed with a total of nine look-up tables 64 60 72", column 9, line 25-30), wherein compensation for color

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point data through utilization of the plurality of pre-calculated gamut shifting arrays is performed at the full processing speed of the graphics controller (since the LUT table is used instead of multiplication operations, the gamut shifting arrays is performed at the full processing speed of the graphics controller).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Oku into Clifton and Ogawa because Clifton and Ogawa disclose a system for color correction with matrix for color compensation and Oku discloses the matrix used for color compensation can be constructed with a plurality of look-up table and adders in order to accelerate the processing speed.

16. As per claim 24, Clifton and Ogawa demonstrated all the elements as applied to the rejection of independent claim 20, *supra*.

Clifton and Ogawa disclose a color correction system. It is noted that Clifton and Ogawa do not explicitly disclose each of the plurality of MLUTs comprises pre-calculated RGB component outputs for each of 256 intensities of each primary color, however, this is known in the art as taught by Oku. Oku discloses a color correcting system in which "the calculated R data is further converted in accordance with formula (10) below so that the converted data always maintains the 256 gradations" (column 9, line 39-41).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Oku into Clifton and Ogawa because Clifton and Ogawa disclose a color

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correction system and Oku also discloses a color correcting system in which the color gradation is maintained at 256 levels in order to obtain proper color gradation.

Claims 6, 10 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Clifton et al. and Ogawa as applied to claim 1 above, and further in view of Shelton (US 2002/0161803).

17. As per claim 25, Clifton and Ogawa demonstrated all the elements as disclosed in the rejected claim 20.

Clifton and Ogawa disclose a color correction system. It is noted that Clifton and Ogawa do not explicitly disclose the non-linearity correction system comprises a set of non-linearization color look-up tables (CLUTs), however, this is known in the art as taught by Oku. Oku discloses a color correcting system in which "The output characteristic correction LUT 75 is mainly used for compensating for manufacturing variations in the apparatus and in the recording medium used" (column 14, line 32-34), since the variation due to manufacturing is inherently non-linear, the tables generated to compensate it is inherently non-linear).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Oku into Clifton and Ogawa because Clifton and Ogawa disclose a color correcting system and Oku discloses the non-linear correction LUT could be used in order to correct monitor specific variation.

18. Claims 6, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clifton et al. and Ogawa as applied to claim 1 above, and further in view of Shelton (US 2002/0161803).

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As per claims 6, 10 and 16, Clifton and Ogawa demonstrated all the elements as applied to the rejection of independent claims 1, 8 and 15, *supra*, respectively.

Clifton and Ogawa disclose a color correction system. It is noted that Clifton and Ogawa do not explicitly disclose the input color video data is input from a website, however, this is known in the art as taught by Shelton. Shelton discloses a color correction method in which color data can be transmitted from a website (Figure 2, item 18).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shelton into Clifton and Ogawa because Clifton and Ogawa disclose a system of color correction a pluralities of monitor and Shelton discloses the color data could be transmitted from a website in order to correct a plurality of remotely located monitor.

Double Patenting

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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20. Claims 1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20 and 23 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6, 8, 4, 7, 24, 26, 28, 29, 31, 30, 16, 18, 20, 8, 24 and 27, respectively, of U.S. Patent No. 6,826,303. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are similar in scope.

21. Claim 21 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 24 of U.S. Patent No. 6,826,303 in view of Clifton (6,388,648) where Clifton discloses a color correction system in which "An LCD projection unit employs a luminance and color balance system employing an LCD array characterization lookup table storing multiple sets of luminance and gamma correction values", Abstract, where the gamma function is non-linear.

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Clifton into claim 24 of PN 6,826,303 in order to correct monitor specific defect.

22. Claim 23 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 24 of U.S. Patent No. 6,826,303 in view of Clifton (6,388,648) where Clifton discloses a color correction system in which each of the plurality of MLUTS are loaded with pre-calculated values that represent specific multiplication operations (Figure 12A- 12I are multiplication matrix and Figure 13, item 166 stores the calculated coefficients).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Clifton into claim 24 of PN 6,826,303 in order to correct monitor specific defect.

23. Claim 24 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 24 of U.S. Patent No. 6,826,303 in view of Oku (5,489,996) where Oku discloses a color correcting system in which "the calculated R data is further converted in accordance with formula (10) below so that the converted data always maintains the 256 gradations" (column 9, line 39-41).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Oku into claim 24 of PN 6,826,303 in order to obtain proper color gradation.

24. Claim 25 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 24 of U.S. Patent No. 6,826,303 in view of Oku (5,489,996) where Oku discloses a color correcting system in which "The output characteristic correction LUT 75 is mainly used for compensating for manufacturing variations in the apparatus and in the recording medium used" (column 14, line 32-34), since the variation due to manufacturing is inherently non-linear, the tables generated to compensate it is inherently non-linear.

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Oku into claim 24 of PN 6,826,303 in order to correct monitor specific variation.

Response to Arguments

25. Applicant's arguments, see amendment, filed 3/21/2005, with respect to the rejection(s) of claim(s) 1, 8, 15 and 20 under *In re* Ijntema or *Oku* have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of *Clifton et al* (6,388,648) and *Ogawa* (6,693,642).

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

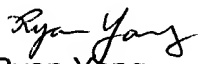
Inquiries

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan R. Yang whose telephone number is (703) 308-6133. The examiner can normally be reached on M-F 8:30AM-6:00PM Second Wed Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ryan Yang
June 13, 2005